

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Jei-Fu Shaw, et al.                      Art Unit : 1638  
Serial No. : 10/763,042                              Examiner : Vinod Kumar  
Filed : January 21, 2004  
Title : PLANT TUBBY-LIKE PROTEINS

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**DECLARATION OF UNDER 37 C.F.R. § 1.132**

I, Jei-Fu Shaw, declare:

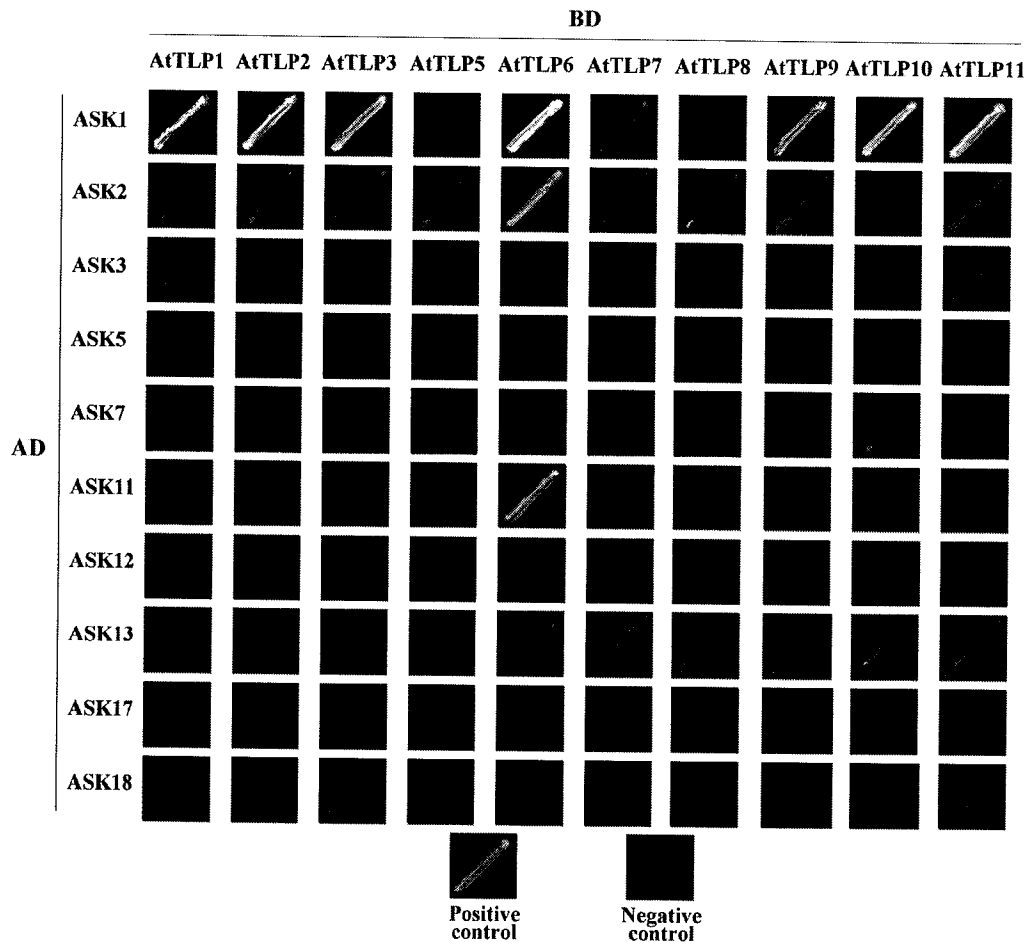
1. I am a co-inventor named in the above-captioned U.S. patent application.

2. I understand that an Office Action dated February 5, 2007 is outstanding in the present application. Claim 26, one of the claims being examined, covers a transformed plant containing a nucleic acid encoding an amino acid sequence that is at least 70% identical to SEQ ID NO:9 and has the activity of increasing the sensitivity of the plant to an environmental factor. SEQ ID NO:9 represents AtTLP9, a member of the *Arabidopsis* tubby-like protein (AtTLP) family. Indeed, the present specification discloses as many as eleven AtTLPs (1-11), having the amino acid sequence of SEQ ID NOs:1-11, respectively.

3. The specification further teaches that AtTLP9 interacts with *Arabidopsis* SKP1-LIKE 1 (ASK1) protein and affects the sensitivity of seeds to exogenous phytohormone abscisic acid (ABA). I submit herewith experimental data supporting that other members of this family having as low as 60% sequence identity to SEQ ID NO:9 share the same activities as AtTLP9.

I have investigated protein-protein interactions between AtTLPs 1-11 and various ASK proteins in the yeast-two hybrid system. Our results shown in Figure 1 below reveal that, just like AtTLP9, five other members of this family, i.e., AtTLPs 1-3, 10 and 11, also specifically interact with ASK1. Of note, AtTLP6 interacts with ASK1 non-specifically, as it also binds to ASK2 and ASK11.

**Figure 1**



As indicated in Table 1 below, the amino acid sequences of these AtTLPs (SEQ ID NOs:1-3, 10, and 11) are about 60-80% identical to that of AtTLP9 (SEQ ID NO:9).

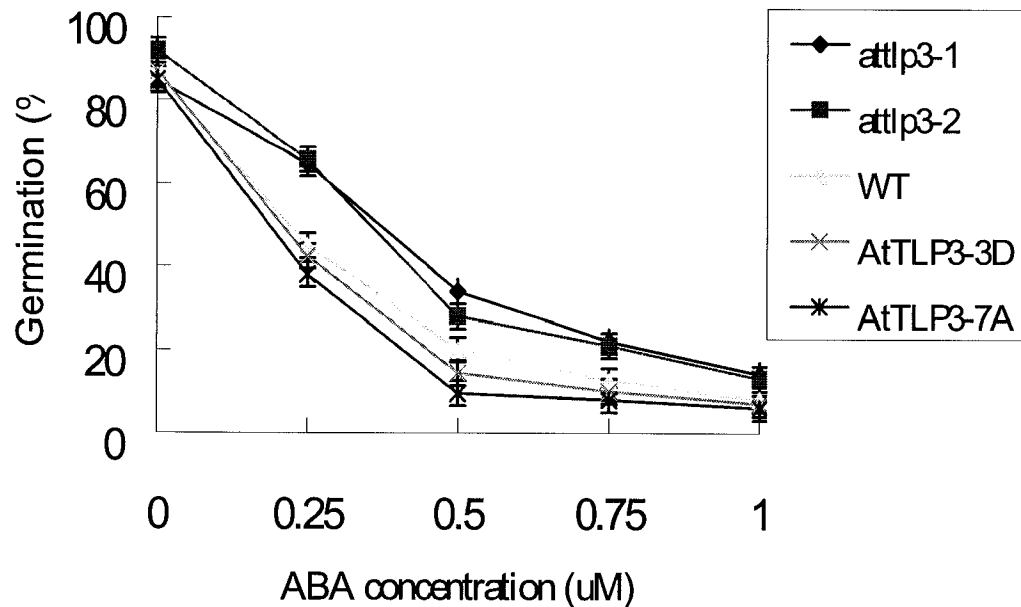
**Table 1. Full-length amino acid sequence identity between AtTLP9 (SEQ ID NO:9) and AtTLPs 1-3, 10, and 11 (SEQ ID NOs:1-3, 10, and 11)**

	AtTLP1	AtTLP2	AtTLP3	AtTLP10	AtTLP11
AtTLP9	64.5%	60.4%	67.1%	64.7%	80.5%

I have further constructed transformed plants each expressing AtTLP3 or mutated

AtTLP3 (*attlps* mutants). The effect of ABA on germination of these plants are shown in Figure 2 below. The transformed plant overexpressing AtTLP3 displays hypersensitivity to ABA, while those carrying mutated AtTLP3 are ABA-insensitive. These results indicate that AtTLP3 share the same activities of AtTLP9.

Figure 2



In sum, at least five members of the AtTLP family, i.e., AtTLPs1-3, 10, and 11, having amino acid sequences as low as 60% identical to that of AtTLP9, possess the same activities of AtTLP9. These results suggest that introducing mutations within non-conserved regions of AtTLP9 (SEQ ID NO:9) would not abolish its activities.

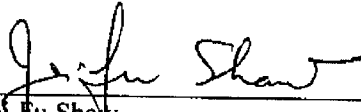
4. I hereby declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and

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that such willful false statements may jeopardize the validity of the application or any patents issued thereon.

Date: June 26, 2007

  
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Jei-Fu Shaw

Research Fellow  
Academia Sinica  
Taipei, Taiwan